

RAW SEQUENCE LISTING

**The Biotechnology Systems Branch of the Scientific and Technical
Information Center (STIC) no errors detected.**

Application Serial Number: 10/588,052
Source: IFWP
Date Processed by STIC: 8/10/06

ENTERED



IFWP

RAW SEQUENCE LISTING

DATE: 08/10/2006

PATENT APPLICATION: US/10/588,052

TIME: 11:05:24

Input Set : A:\44352-0011-00-US sequence listing(pct 05 235).txt

Output Set: N:\CRF4\08102006\J588052.raw

```

3 <110> APPLICANT: Lifenza Co., Ltd.
5 <120> TITLE OF INVENTION: PROTEIN WITH ACTIVITY OF HYDROLYZING AMYLOPECTIN, STARCH,
6 GLYCOGEN AND AMYLOSE, GENE ENCODING THE SAME, CELL EXPRESSING THE
7 SAME, AND PRODUCTION METHOD THEREOF
C--> 9 <140> CURRENT APPLICATION NUMBER: US/10/588,052
C--> 9 <141> CURRENT FILING DATE: 2006-07-31
W--> 0 <130> FILE REFERENCE:
9 <150> PRIOR APPLICATION NUMBER: KR2004-0006186
10 <151> PRIOR FILING DATE: 2004-01-30
12 <160> NUMBER OF SEQ ID NOS: 4
14 <170> SOFTWARE: KopatentIn 1.71
16 <210> SEQ ID NO: 1
17 <211> LENGTH: 647
18 <212> TYPE: PRT
19 <213> ORGANISM: Artificial Sequence
21 <220> FEATURE:
22 <223> OTHER INFORMATION: E. coli BL21(DE3)pLysS
25 <400> SEQUENCE: 1
26 Met Leu Leu Ile Asn Phe Phe Ile Ala Val Leu Gly Val Ile Ser Leu
27 1 5 10 15
29 Ser Pro Ile Val Val Ala Arg Tyr Ile Leu Arg Arg Asp Cys Thr Thr
30 20 25 30
32 Val Thr Val Leu Ser Ser Pro Glu Ser Val Thr Ser Ser Asn His Val
33 35 40 45
35 Glu Leu Ala Ser His Glu Met Cys Asp Ser Thr Leu Ser Ala Ser Leu
36 50 55 60
38 Tyr Ile Tyr Asn Asp Asp Tyr Asp Lys Ile Val Thr Leu Tyr Tyr Leu
39 65 70 75 80
41 Thr Ser Ser Gly Thr Thr Gly Ser Val Thr Ala Ser Tyr Ser Ser Ser
42 85 90 95
44 Leu Ser Asn Asn Trp Glu Leu Trp Ser Leu Ser Ala Pro Ala Ala Asp
45 100 105 110
47 Ala Val Glu Ile Thr Gly Ala Ser Tyr Val Asp Ser Asp Ala Ser Ala
48 115 120 125
50 Thr Tyr Ala Thr Ser Phe Asp Ile Pro Leu Thr Thr Thr Thr Ser
51 130 135 140
53 Ser Ser Ser Ala Ser Ala Thr Ser Thr Ser Ser Leu Thr Thr Thr Ser
54 145 150 155 160
56 Ser Val Ser Ile Ser Val Ser Val Pro Thr Gly Thr Ala Ala Asn Trp
57 165 170 175
59 Arg Gly Arg Ala Ile Tyr Glu Ile Val Thr Asp Arg Phe Ala Arg Thr
60 180 185 190
62 Asp Gly Ser Thr Thr Tyr Leu Cys Asp Val Thr Asp Arg Val Tyr Cys

```

RAW SEQUENCE LISTING

DATE: 08/10/2006

PATENT APPLICATION: US/10/588,052

TIME: 11:05:24

Input Set : A:\44352-0011-00-US sequence listing(pct 05 235).txt

Output Set: N:\CRF4\08102006\J588052.raw

```

63          195          200          205
65 Gly Gly Ser Tyr Glu Gly Ile Ile Asn Met Leu Asp Tyr Ile Glu Gly
66          210          215          220
68 Met Gly Phe Thr Ala Ile Trp Ile Ser Pro Ile Val Glu Asn Ile Pro
69 225          230          235          240
71 Asp Asp Thr Gly Tyr Gly Tyr Ala Tyr His Gly Tyr Trp Met Lys Asp
72          245          250          255
74 Ile Phe Ala Leu Asn Thr Asn Phe Gly Thr Ala Asp Asp Leu Ile Ala
75          260          265          270
77 Leu Ala Thr Glu Leu His Asn Arg Gly Met Tyr Leu Met Val Asp Ile
78          275          280          285
80 Val Val Asn His Phe Ala Phe Ser Gly Ser His Ala Asp Val Asp Tyr
81          290          295          300
83 Ser Glu Tyr Phe Pro Tyr Ser Ser Glu Asp Tyr Phe His Ser Phe Cys
84 305          310          315          320
86 Trp Ile Thr Asp Tyr Ser Asn Glu Thr Asn Val Glu Gln Cys Trp Leu
87          325          330          335
89 Gly Asp Asp Thr Val Pro Leu Val Asp Val Asn Thr Glu Leu Asp Thr
90          340          345          350
92 Val Lys Ser Glu Tyr Gln Ser Trp Val Glu Glu Leu Ile Ala Asn Tyr
93          355          360          365
95 Ser Ile Asp Gly Leu Arg Ile Asp Thr Val Lys His Val Glu Met Asp
96          370          375          380
98 Phe Trp Ala Pro Phe Glu Glu Ala Ala Gly Ile Tyr Ala Val Gly Glu
99 385          390          395          400
101 Val Phe Asp Gly Asp Pro Ser Tyr Thr Cys Pro Tyr Glu Glu Asn Leu
102          405          410          415
104 Asp Gly Val Leu Asn Tyr Pro Val Tyr Tyr Pro Val Val Ser Ala Phe
105          420          425          430
107 Glu Ser Val Ser Gly Ser Val Ser Ser Leu Val Asp Met Ile Asp Thr
108          435          440          445
110 Leu Lys Ser Glu Cys Thr Asp Thr Thr Leu Leu Gly Ser Phe Leu Glu
111          450          455          460
113 Asn Glu Asp Asn Pro Arg Phe Pro Ser Tyr Thr Ser Asp Glu Ser Leu
114 465          470          475          480
116 Ile Lys Asn Ala Ile Ala Phe Thr Met Leu Ser Asp Gly Ile Pro Ile
117          485          490          495
119 Ile Tyr Tyr Gly Glu Glu Gln Gly Leu Asn Gly Gly Asn Asp Pro Tyr
120          500          505          510
122 Asn Arg Glu Ala Leu Trp Leu Thr Gly Tyr Ser Thr Thr Ser Thr Phe
123          515          520          525
125 Tyr Lys Tyr Ile Ala Ser Leu Asn Glu Ile Arg Asn Glu Ala Ile Tyr
126          530          535          540
128 Lys Asp Asp Thr Tyr Leu Thr Tyr Glu Asn Trp Val Ile Tyr Ser Asp
129 545          550          555          560
131 Ser Thr Thr Ile Ala Met Arg Lys Gly Phe Thr Gly Asn Glu Ile Ile
132          565          570          575
134 Thr Val Leu Ser Asn Leu Gly Thr Ser Gly Ser Ser Tyr Thr Leu Thr
135          580          585          590

```

RAW SEQUENCE LISTING

DATE: 08/10/2006

PATENT APPLICATION: US/10/588,052

TIME: 11:05:24

Input Set : A:\44352-0011-00-US sequence listing(pct 05 235).txt

Output Set: N:\CRF4\08102006\J588052.raw

```

137 Leu Ser Asn Thr Gly Tyr Thr Ala Ser Ser Val Val Tyr Glu Ile Leu
138      595      600      605
140 Thr Cys Thr Ala Val Thr Val Asp Ser Ser Gly Asn Leu Ala Val Pro
141      610      615      620
143 Met Ser Ser Gly Leu Pro Lys Val Phe Tyr Glu Glu Ser Gln Leu Val
144 625      630      635      640
146 Gly Ser Gly Ile Cys Ser Met
147      645
150 <210> SEQ ID NO: 2
151 <211> LENGTH: 1946
152 <212> TYPE: DNA
153 <213> ORGANISM: Artificial Sequence
155 <220> FEATURE:
156 <223> OTHER INFORMATION: E. coli BL21(DE3)pLysS
159 <400> SEQUENCE: 2
160 atgttgctga tcaacttttt catcgctggt ctgggagtga tctactgtc tcctattgtg      60
162 gttgctcggt atattcttcg acgagattgc actacagtta cggctctgtc ctcccctgag      120
164 tctgtgacga gttcgaacca tggtcagcta gccagtcagt agatgtgcga cagtaccttg      180
166 tcagcgtccc tttatatcta caatgatgat tatgataaga ttgtgacact ttattatctt      240
168 acatcgctcg gcacaactgg gtccgtaaca gcgtcttatt cttctagttt gagtaacaac      300
170 tgggaattgt ggtctctctc ggctccggct gcagatgctg tcgagatcac tggagctagt      360
172 tatgtagaca gcgatgcac tcgcacatac gccacgtctt ttgatatacc tcttactacc      420
174 acgacaacgt cgtcgtcttc tgctagtgcg acttcaacat ctagtctaac cacaacatct      480
176 agtgtttcca tttcgggtgc cgtccctaca ggaacagctg caaattggcg aggtagggt      540
178 atctatcaga tcgtgactga tagatttgca cgcactgacg gctccaccac atatttatgc      600
180 gatgttaccg ataggggtcta ttgctggagg tcttatcagg ggattatcaa tatgctggat      660
182 tacatccaag gcatgggctt tactgctatt tggatttctc ctatagtgga aaatattccc      720
184 gatgacaccg gatacgggta cgcatatcat gggtattgga tgaaagatat cttcgcctcg      780
186 aatacaaat tgggtactgc agacgatttg atagcgttgg ctacggaatt gcataatcgc      840
188 ggcattgtact tgatgggtga tattgttgtc aatcactttg ctttctcagg aagtcatgcc      900
190 gacgtggact actctgaata tttcccgtat tcgtcccagg attattttca ttcattttgc      960
192 tggattacag attactcgaa tcagacaaac gttgagcagt gctggcttgg cgacgatact      1020
194 gttcctctcg tggacgtcaa taccctactt gacaccgtga aaagtgaata tcaatcctgg      1080
196 gttcaagaac ttatagctaa ttactctatt gacggcctaa gaattgacac cgtcaagcac      1140
198 gtgcagatgg atttttgggc accatttcaa gaggtgcag ggatttacgc cgttggtgaa      1200
200 gtattcgacg gtgatccatc ctacacatgt ccatatcagg aaaatcttga cgggtgtctg      1260
202 aattatcctg tttattatcc tgcgtctctc gcgtttgaga gtgttagtgg gtcggtctcc      1320
204 tcgttagtgc atatgattga tacgctcaag tctgaatgca ccgacactac tctcctaggc      1380
206 tcctttctag agaatcaaga taatccgcga ttccctagct acacttctga tgagtcttta      1440
208 attaaaaatg cgatcgcttt cactatgctc tcagacggca ttcccataat ttattacggt      1500
210 caggagcaag gcctcaatgg tggaaacgat ccctataatc gagaggcgct ttggcttacg      1560
212 ggctactcca caacgtcgac gttctacaaa tacattgcgt cgttgaatca gattagaaat      1620
214 caggctatat acaaagatga tacttatctc acatatcaga actgggttat ttattcggat      1680
216 tccacgacaa tagcaatgcg gaaaggtttt acaggggaacc aaataattac ggttctgtca      1740
218 aatcttggga ccagtggcag ttcgtacact ttgacgcttt cgaatacggg atataccgca      1800
220 tctagcgttg tatatgagat cttgacatgc acagctgtga ctgtggattc gtctgggaat      1860
222 ttggcagtgc cgatgtccag tggcctacca aaagtctttt atcaggaatc gcaactgggt      1920
224 ggctctggaa tctgtccat gtatag
227 <210> SEQ ID NO: 3

```

RAW SEQUENCE LISTING

DATE: 08/10/2006

PATENT APPLICATION: US/10/588,052

TIME: 11:05:24

Input Set : A:\44352-0011-00-US sequence listing(pct 05 235).txt

Output Set: N:\CRF4\08102006\J588052.raw

228 <211> LENGTH: 27
229 <212> TYPE: DNA
230 <213> ORGANISM: Artificial Sequence
232 <220> FEATURE:
233 <223> OTHER INFORMATION: L. starkeyi primer 1(sense)
236 <400> SEQUENCE: 3
237 tacagttacg gtcttgcct cccctga 27
240 <210> SEQ ID NO: 4
241 <211> LENGTH: 21
242 <212> TYPE: DNA
243 <213> ORGANISM: Artificial Sequence
245 <220> FEATURE:
246 <223> OTHER INFORMATION: L. starkeyi primer 2(antisense)
249 <400> SEQUENCE: 4
250 ctctacatgg agcagattcc a 21

VERIFICATION SUMMARY

DATE: 08/10/2006

PATENT APPLICATION: US/10/588,052

TIME: 11:05:25

Input Set : A:\44352-0011-00-US sequence listing(pct 05 235).txt

Output Set: N:\CRF4\08102006\J588052.raw

L:9 M:270 C: Current Application Number differs, Replaced Current Application No

L:9 M:271 C: Current Filing Date differs, Replaced Current Filing Date

L:0 M:201 W: Mandatory field data missing, <130> FILE REFERENCE